

REMARKS

Claims 1 and 6 have been amended. No claims have been cancelled or added. Reconsideration of this application is respectfully requested.

Double Patenting

Claims 1, 6, and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 10 of copending Application Number 09/997,510.

Applicant respectfully believes that the Examiner may have made an error in listing the application number above. It appears that this patent application is not related to the present application in any way. The 09/997,510 application relates to chromatic dispersion in optic fibers. Further, the Examiner states that claim 1 and 10 from the above application create the double-patenting rejection. However, this application does not even contain a claim number 10. Applicant left the Examiner a voicemail on September 20, 2004 in order to address this issue, but no response was given by the time this response was mailed. Hence, a terminal disclaimer is not being filed in regards to this reference. Applicant respectfully requests that the Examiner remove this rejection.

Claims 1, 6, and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 16, and 23 of copending Application Number 10/418,370.

Applicant will file a terminal disclaimer with application number 10/418,370 in regards to the present application. A copy of that terminal disclaimer is included in this response.

Claims 1, 6, and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application Number 10/409,806.

A preliminary amendment was filed with application number 10/409,806 on July 7, 2003 that cancelled claim 1. Hence, a provisional double-patenting rejection would no longer apply. Applicant respectfully requests that the Examiner remove this rejection.

Claims 1, 6, and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 14, 20, and 31 of copending Application Number 09/802,405.

Applicant is concurrently filing a terminal disclaimer in regards to this rejection. A copy of the terminal disclaimer is included in this response.

Claim Rejections -35 USC § 102

Claims 1-14 stand rejected under § 35 U.S.C. 102(e) as being anticipated US Patent Application Publication 2002/0129173 by Weber et al. (hereinafter "Weber").

In regards to claim 1, the Examiner states:

Scheduling requests to a device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point (number of credits) indicating when to

switch state, wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests is disclosed in claim 1 as the transaction stream. Once the transaction stream ends, based on the number of credits issued, a busy "state" is entered for that device.

(Office Action, page 4)

However, Applicant asserts that Weber does not anticipate claim 1 under 35 U.S.C. §102(e). Claim 1 states:

- 1.) A method for scheduling access to a device comprising:
 - tracking a current state of a device;
 - tracking a count of a number of requests which require a particular state; and
 - scheduling requests to the device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point indicating when to switch state, wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests.

(Emphasis added)

Weber does not disclose a method comprising scheduling requests to the device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point indicating when to switch state, wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests. The Examiner states that "number of credits", from claim 3, is the same as "scheduling requests to a device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point." Applicant fails to understand how this is the same. Applicants, respectfully assert that Weber does not disclose "scheduling requests to a

device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point."

Further, the Examiner states that "wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests" is disclosed in claim 1 of Weber as the "transaction stream". Again Applicant fails to see how "transaction stream" of claim 1 is the same as the above-mentioned language.

Paragraph 6 of Weber's specification is the only place where transaction streams are mentioned. Weber states:

[0006] One disadvantage of computer buses is that each sub-system or component connected to the bus is constrained to use the protocol of the bus. In some cases, this limits the performance of the sub-system. For example, a subsystem may be capable of handling multiple transaction streams simultaneously, but the bus protocol is not capable of fully supporting concurrent operations. In the case of a sub-system handling multiple transaction streams where each transaction stream has ordering constraints, it is necessary for the sub-system to identify each increment of data received or transmitted with a certain part of a certain data stream to distinguish between streams and to preserve order within a stream. This includes identifying a sub-system that is a source of a data transmission. Conventionally, such identification is limited to a non-configurable hardware identifier that is generated by a particular sub-system or component.

(Emphasis added)

Nothing in the above paragraph discloses that a transaction stream is the same as "wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests." In contrast, Weber discloses that a sub-system may be limited by a traditional single bus protocol. Further, Weber discloses that although components of a sub-system may be capable of handling multiple transaction

streams, the traditional bus protocol may not be capable of such concurrent activity.

This is not the same as claimed in claim 1.

Lastly, the Examiner states that, "Once the transaction stream ends, based on the number of credits issued, a busy "state" is entered for that device." This is not the same as the limitation discussed above in regards to claim 1.

Applicant respectfully asserts that Weber does not disclose scheduling requests to the device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point indicating when to switch state, wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests. Therefore, Weber does not disclose or suggest all the limitations stated in claim 1. Thus, Weber does not anticipate claim 1 under 35 U.S.C. §102(e).

Claims 2-5 depend upon and include the limitations of claim 1. Therefore claims 2-5 are also not anticipated by Weber under 35 U.S.C. §102(e).

The Examiner states that Weber anticipates independent claims 6 and 8 (under 35 U.S.C. §102(e)), by asserting the same reference cites as used in regards to claim 1. However, independent claims 6 and 8 do not contain the same limitations as claim 1. In fact, the limitations are quite different. Applicant respectfully believes that the references cited by Weber, in regards to independent claims 6 and 8, were by mistake. Nonetheless applicant respectfully submits that Weber does not anticipate independent claims 6 and 8 under 35 U.S.C. §102(e).

Independent claim 6 states:

6.) A bus scheduler comprising:

an input configured to receive at least one incoming request, each request indicating a bus direction;
a switch point;
an indicator of a current bus direction
a count of requests processed using the current bus direction; and
logic configured to switch the direction of the bus to process incoming requests wherein after the count reaches the switch point and there are incoming requests having the direction opposite to the current direction of the device bus, switching the direction of the device bus.

(Emphasis added)

Weber does not disclose anything to do with logic that is configured to switch the direction of a bus. Weber only discloses a shared communication bus, which allows for such a bus to concurrently process multiple data streams. For example, Weber states:

[0010] One embodiment of the present invention includes a shared communications bus for providing flexible communication capability between electronic sub-systems. One embodiment includes a protocol that allows for identification of data transmissions at different levels of detail as required by a particular sub-system without additional knowledge being designed into the subsystem.

This is not the same as claim 6. Hence, Applicant respectfully asserts that Weber does not disclose logic configured to switch the direction of the bus to process incoming requests wherein after the count reaches the switch point and there are incoming requests having the direction opposite to the current direction of the device bus, switching the direction of the device bus. Therefore, Weber does not disclose or suggest all the limitations stated in claim 6. Thus, Weber does not anticipate claim 6 under 35 U.S.C. §102(e).

Claim 7 depends upon and includes the limitations of claim 6. Therefore claim 7 is also not anticipated by Weber under 35 U.S.C. §102(e).

Independent claim 8 states:

A scheduler comprising:
a switch point;
a current device state;
a count;
logic configured to determine an updated device state using the switch point and count such that when the count crosses a threshold of the switch point, the device state is changed; and
scheduling access requests to the device using the updated device state.

(Emphasis added)

Weber does not disclose logic configured to determine an updated device state using the switch point and count such that when the count crosses a threshold of the switch point, the device state is changed. In contrast, Weber does not disclose anything to do with a switch point, let alone using one to update a device state as claimed in claim 8.

Therefore, Weber does not disclose or suggest all the limitations stated in claim 8.

Thus, Weber does not anticipate claim 8 under 35 U.S.C. §102(e).

Claims 9-14 depend upon and include the limitations of claim 8. Therefore claims 9-14 are also not anticipated by Weber under 35 U.S.C. §102(e).

Claims 1-14 stand rejected under § 35 U.S.C. 102(e) as being anticipated US Patent 6,510,4987 by Strongin et al. (hereinafter "Strongin").

In regards to claim 1, the Examiner states:

Tracking a count of a number of requests which require a "particular" state is disclosed in column 11, lines 55-60, as the number of requests issued and/or amount of time elapsed. Both "particular states" would inherently require a count of some sort.

(Office Action, page 6)

However, Applicant asserts that Strongin does not anticipate claim 1 under 35 U.S.C. §102(e). Claim 1 states:

1.) A method for scheduling access to a device comprising:
tracking a current state of a device;
tracking a count of a number of requests which require a particular state; and
scheduling requests to the device using the current state of the device, the count of the number of requests that have already been scheduled using the current state, a switch point indicating when to switch state, wherein after the count reaches the switch point and there are incoming requests having an alternate state to the current state of the device, switching the state of the device to process incoming requests.

(Emphasis added)

Strongin does not disclose a method comprising tracking a count of a number of requests which require a particular state. Strongin discloses:

...it is to be understood that for each such described embodiment, corresponding alternate embodiments acquire memory status without such memory status lines. In such alternate embodiments, the memory arbiters and/or components thereof are operably connected to one or more memory devices not physically but by logical association whereby memory status is determined based on previous memory access activity (e.g. previous memory requests issued and/or elapsed time since requests issued can be used to determine/acquire the status of the one or more system memory devices).

(Col. 11, lines 55-60)

Strongin is disclosing that a memory status can be determined based on previous memory access activity such as previously issued memory requests or elapsed time since issued requests. This is not the same as tracking a count of a number of requests, which require a particular state. Nothing is disclosed or suggested in Strongin in regards to tracking a count of a number of requests. The Examiners states that, "Both particular states would inherently require a count of some sort." Applicant respectfully disagrees. Such a limitation cannot be implicitly read into the reference at issue. Strongin does not explicitly state the tracking a count of a number of requests. Nor is such a count suggested.

Further, Strongin fails to disclose that requests which require "particular states" are being tracked. There is no mention of such particular states. Strongin only discloses that, "Depicted is that memory state tracking unit 484 receives information via memory status information line 4511 about the state of system memory 116..." (Col. 11, lines 43-45). This is not the same as tracking a count of a number of requests, which require a particular state. This only states that a tracking unit receives information about the state of system memory in general. This is insufficient to disclose the limitation as issue.

Applicant respectfully asserts that Strongin does not disclose tracking a count of a number of requests which require a particular state. Therefore, Strongin does not disclose or suggest all the limitations stated in claim 1. Thus, Strongin does not anticipate claim 1 under 35 U.S.C. §102(e).

Claims 2-5 depend upon and include the limitations of claim 1. Therefore claims 2-5 are also not anticipated by Strongin under 35 U.S.C. §102(e).

The Examiner states that Strongin anticipates independent claims 6 and 8 (under 35 U.S.C. §102(e)), by asserting the same reference cites as used in regards to claim 1. However, independent claims 6 and 8 do not contain the same limitations as claim 1. In fact, the limitations are quite different. Applicant respectfully believes that the references cited by Strongin, in regards to independent claims 6 and 8, were by mistake. Nonetheless applicant respectfully submits that Strongin does not anticipate independent claims 6 and 8 under 35 U.S.C. §102(e).

Independent claim 6 states:

- 6.) A bus scheduler comprising:
 - an input configured to receive at least one incoming request, each request indicating a bus direction;
 - a switch point;

an indicator of a current bus direction
a count of requests processed using the current bus direction; and
logic configured to switch the direction of the bus to process
incoming requests wherein after the count reaches the switch point and
there are incoming requests having the direction opposite to the current
direction of the device bus, switching the direction of the device bus.

(Emphasis added)

Strongin does not disclose logic configured to switch the direction of the bus to process
incoming requests wherein after the count reaches the switch point and there are
incoming requests having the direction opposite to the current direction of the device
bus, switching the direction of the device bus. In contrast, Strongin discloses:

In one embodiment, memory arbiter 482 examines the information cited (e.g., addresses to be accessed by pending memory operations, the type of memory operation to be performed, the state of system memory 116 (specifically the pages open within DRAM chip 130 and the direction of the
buses associated with those respective open pages) to determine which pending memory operation(s) should be next executed.

(Emphasis added)

This only shows that a memory arbiter examines information (e.g. bus direction) to determine which pending memory operations should be executed next. This is not the same as logic, which can switch the direction of the bus.

Strongin further states:

Second scheduled for execution are those pending non-speculative memory operations within requested memory operation buffer 136 which are directed toward open pages, but which are of a type which would
require that the bus associated with the open pages be reversed in
direction (again such requests can be optionally rearranged following selection depending upon any associated priorities).

(Emphasis added)

Here, Strongin only discusses memory operations, which require that the bus associated with the open pages be reversed in direction. This does not disclose logic that can switch the direction of a bus as taught in claim 6.

Applicant respectfully asserts that Strongin does not disclose logic configured to switch the direction of the bus to process incoming requests wherein after the count reaches the switch point and there are incoming requests having the direction opposite to the current direction of the device bus, switching the direction of the device bus.

Therefore, Strongin does not disclose or suggest all the limitations stated in claim 6.

Thus, Strongin does not anticipate claim 6 under 35 U.S.C. §102(e).

Claim 7 depends upon and includes the limitations of claim 6. Therefore claim 7 is also not anticipated by Strongin under 35 U.S.C. §102(e).

Independent claim 8 states:

A scheduler comprising:
a switch point;
a current device state;
a count;
logic configured to determine an updated device state using the switch point and count such that when the count crosses a threshold of the switch point, the device state is changed; and
scheduling access requests to the device using the updated device state.

(Emphasis added)

Strongin does not disclose logic configured to determine an updated device state using the switch point and count such that when the count crosses a threshold of the switch point, the device state is changed. In contrast, Strongin does not disclose anything to do with a switch point, let alone using one to update a device state as claimed in claim 8.

Therefore, Strongin does not disclose or suggest all the limitations stated in claim 8.

Thus, Strongin does not anticipate claim 8 under 35 U.S.C. §102(e).

Claims 9-14 depend upon and include the limitations of claim 8. Therefore claims 9-14 are also not anticipated by Strongin under 35 U.S.C. §102(e).

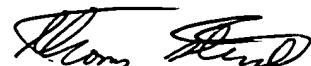
Conclusion

It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome. A terminal disclaimer is submitted with this amendment. Applicants reserve all rights with respect to the application of the doctrine equivalents. If there are any additional charges, please charge them to our Deposit Account No. 02-2666. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Dated: 9-23-04



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